BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

COLUMBIA, SOUTH CAROLINA

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2018-321-E and 2018-322-E:

DUKE ENERGY CAROLINAS and DUKE ENERGY PROGRESS — *Allowable Ex Parte Briefing Regarding an Update on Electric Transportation and Potential New Programs*

ALLOWABLE EX PARTE BRIEFING

COMMISSION MEMBERS PRESENT: Justin T. WILLIAMS, CHAIRMAN; Florence P. BELSER, VICE CHAIR; *and* COMMISSIONERS Carolyn L. 'Carolee' WILLIAMS, Stephen M. 'Mike' CASTON[A/V], Thomas J. 'Tom' ERVIN[A/V], Headen B. THOMAS, and Delton W. POWERS, JR.

ADVISOR TO COMMISSION: David W. Stark, III, Esq.
STAFF COUNSEL

STAFF: Jocelyn Boyd, Chief Clerk/Executive Director; F. David Butler[A/V], Special Counsel; Sandra V. Moser, Esq., Legal Staff; John Powers[A/V] and Cody Kleckley Technical Advisory Staff; Sonya Hancock, Clerk's Office Staff; Patricia Stephens[A/V], Project Management Staff; Jackie Thomas, Information Technology Staff; Melissa Purvis and Gwen Richardson, Livestream Technical Staff; Officer Joe Biggs, Security Staff; and Jo Elizabeth M. Wheat, CVR-CM/M-GNSC, Court Reporter

APPEARANCES:

KATIE M. BROWN, ESQUIRE, and ***LISLE TRAYWICK, ESQUIRE,*** legal representatives of/for **DUKE ENERGY CAROLINAS** AND **DUKE ENERGY PROGRESS**, together with PRESENTERS ***JAY OLIVER*** *[Managing Director/Grid Systems Integration],* ***CORY GORDON*** *[Director/Transportation Electrification],* and ***TERESA REED*** *[Director/Rates & Regulatory Planning]*

ANDREW M. BATEMAN, ESQUIRE, Designee of the Executive Director of the **SOUTH CAROLINA OFFICE OF REGULATORY STAFF**

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Note: For identification of any additional referenced materials and/or links for same, please see correspondence to be filed by the Office of Regulatory Staff Designee

Please note the following inclusions/attachments to the record:

- Presentation Slides (PDF), including link(s) if any

P R O C E E D I N G S

CHAIRMAN J. WILLIAMS: Good morning, ladies and gentlemen. Welcome to the Public Service Commission of South Carolina. Today's February 28th and the time is 10 a.m. We're here for an allowable ex parte briefing.

Before we get started, please join me in a brief moment of silence.

[Brief pause]

Thank you, ladies and gentlemen.

Joining us in the hearing room we have Commissioners J. Williams, C. Williams, Powers, Belser, and Thomas. Joining us virtually we have Commissioners Ervin and Caston.

Attorney Stark.

MR. STARK: Thank you, Mr. Chairman. Mr. Chairman, we are here for the proceeding in Dockets – an allowable ex parte proceeding – in Dockets No. 2018-321-E and 2018-322-E.

This is the request for an allowable ex parte briefing for Duke Energy Carolinas, LLC, had Duke Energy Progress, LLC, regarding an electric transportation update and potential new programs.

Mr. Chairman, I do have some preliminary comments. Would you like me to make those at this

time?

CHAIRMAN J. WILLIAMS: Please, sir.

MR. STARK: Thank you, sir.

Thank you, Mr. Chairman. Good morning, Commissioners, and all those who are present here today in person or virtually.

Today is Monday, February 28, 2022, at 10 a.m., and we're here in the Commission's hearing room pursuant to a Notice of Request for an Allowable Ex Parte. The request for this allowable ex parte is outlined in Commission Dockets 2018-321-E and 2018-322-E. The subject matter noticed is: Electric transportation update and potential new programs.

This, I would remind everyone, is a briefing and not a hearing. The briefing must be conducted in compliance with the provisions of South Carolina Code Section 58-3-260(C), and the requirements of that statute are, in part, that the allowable ex parte briefing be confined to the subject matter which has been noticed. I would, therefore, ask the presenters, Commissioners, and Staff to please refrain from discussing any matters not related to the specific topic.

The statutes prohibits any presenter,

Commissioners, or Commission Staff from requesting or giving any commitment, predetermination, or prediction regarding any action by any Commissioner as to an ultimate issue which either is or is likely to come before the Commission. I would ask the presenters, Staff, and Commissioners to refrain from referencing any report, article, statute, or document of any kind that are not included in today's presentation. A copy of any document which is referenced during the briefing must be provided to the Office of Regulatory Staff for inclusion into the record, which will be certified to the Chief Clerk of the Commission, Ms. Jocelyn Boyd.

If anyone, during the course of this briefing, exceeds the scope or does not comply with or fails to conduct themselves within the provisions of Section 58-3-260, it is expected that a contemporaneous objection will be made.

And, finally, everyone in attendance today, in person or virtually, must sign in or register. Everyone in the hearing room or watching virtually must read, sign, and return the form which you were given at the door or the form which will be e-mailed to you for your virtual appearance, which will include instructions and the deadline for its

return. It is required by law for each attendee, whether attending virtually or in person, to certify that the requirements contained in Section 58-3-260(C) have been complied with in this presentation.

Thank you for your time and attention. Thank you, Mr. Chairman.

CHAIRMAN J. WILLIAMS: Thank you, sir.

Let's take appearances from the party. I see Ms. Brown is already at the podium. Yes, ma'am.

MS. BROWN: Good morning, Mr. Chairman, members of the Commission. My name is Katie Brown and I represent Duke Energy Carolinas and Duke Energy Progress for purposes of this allowable ex parte briefing. The companies would like to thank the Commission for its time this morning and allowing us to be here today in person.

Would you like me to go ahead and introduce our speakers now, or...

CHAIRMAN J. WILLIAMS: Yes, ma'am, please.

MS. BROWN: Okay. First, we have Jay Oliver; he is Managing Director, Grid Systems Integration. Cory Gordon is Director, Transportation Electrification; and Teresa Reed is Director, Rates and Regulatory Planning.

I don't have any additional remarks this morning, so I think that's everything from the companies for right now.

CHAIRMAN J. WILLIAMS: All right. Thank you very much, ma'am.

MS. BROWN: Thank you.

CHAIRMAN J. WILLIAMS: Office of Regulatory Staff, Attorney Bateman?

MR. BATEMAN: Good morning, Mr. Chairman and members of the Commission. Serving as the Designee of the Executive Director of the Office of Regulatory Staff this morning is, myself, Andrew Bateman. Thank you, very much.

CHAIRMAN J. WILLIAMS: So, Attorney Bateman.

MR. BATEMAN: Yes, sir.

CHAIRMAN J. WILLIAMS: I see here that you are the Chief Legal Officer for ORS. Is that a promotion?

MR. BATEMAN: Yes, sir, I believe –

CHAIRMAN J. WILLIAMS: Congratulations.

MR. BATEMAN: Thank you, Mr. Chairman.

CHAIRMAN J. WILLIAMS: Congratulations. Who is that with – who is that gentleman with you at the table? Is that ORS or Duke?

MR. BATEMAN: Mr. Chairman, I believe this

is...

MR. TRAYWICK: Good morning, Mr. Chairman. Lisle Traywick, of Robinson Gray, on behalf of the companies, as well.

CHAIRMAN J. WILLIAMS: Okay. Awesome. Thank you, Mr. Traywick.

Is there anyone else? No one else? All right. Panelists, are you ready to proceed? All right, the floor is yours.

MR. JAY OLIVER [DEC/DEP]: All right. Thank you. Appreciate the opportunity to be here.

Maybe I'll explain what my role is at Duke Energy, what "grid systems integration" actually means. I lead the energy storage development team, the transportation electrification team, the clean energy customers programs team, demand-side management, and grid telecom strategy. It may sound like disparate functions, but they actually work very closely together to help us manage the grid now and in the future.

I'm going to start off by something I noticed, and I think anyone who watched the Super Bowl would've noticed this. I like the commercials, as well as the football. I think there were somewhere between five and ten electric vehicle commercials

in the Super Bowl, by far the most of any product. That tells me – and I already knew this – that this transition is happening, and it's happening very quickly, and we certainly need to be ready for it.

Now, Duke's focus with transportation electrification is really in two areas: The first is to simplify electric vehicle adoption through innovative customer programs – we're going to talk about a few of those today – and also to proactively ready the grid for growth from vehicle electrification.

Now, the two programs we're going to talk about today work together to do just that. They simplify adoption for our customers and help us ready the grid for proactive adoption. We'll demonstrate how these programs line up very well with recommendations from stakeholder working groups in South Carolina. And on 3/11 we'll also hold a stakeholder session specifically dedicated to these two programs.

And with that, I'll turn it over to my colleague Cory Gordon.

MR. CORY GORDON [DEC/DEP]: Thank you, Jay.

Good morning, Mr. Chairman, Commissioners. Thank you for having us here today. I'd like to go

ahead and get us started. Is it possible to have the slides brought up on the televisions?

[Reference: Presentation Slide 1]

Thank you. So — apologies; I'm having a little bit of trouble advancing our slides here.

[Reference: Presentation Slide 2]

Here we go. So, a little bit about our agenda today. We have done introductions, and I'm going to start talking about a little bit of EVs and EV Charging 101 just to ground everybody in terminology and the state of the industry. We will then talk about something we call the Make-Ready Credit Program. I'll explain what Make-Ready means. We'll talk about an EVSE, a hardware/software program. And then, finally, we'll turn it over and have questions and discussion, as desired. [Indicating.] There we go.

[Reference: Presentation Slide 3]

So, first, let's talk about types of EVs and hybrid electric vehicles. This can mean a lot of different things to a lot of different people. Today we're really thinking about two types of EVs, and those EVs plug in, and so they impact our electric grid. The first is a plug-in hybrid. This EV has a battery electric range somewhere

between 25 and 50 miles. It also has an internal combustion engine, and so the concept of range anxiety typically is not an issue with a vehicle like this.

MS. RICHARDSON: [Indicating.]

MR. CORY GORDON [DEC/DEP]: [Indicating.] Thank you.

And, however, despite the lack of range anxiety — or, perhaps, along with that lack of range anxiety — there's a lack of simplicity in the drivetrain for this vehicle, and so the benefits of lower maintenance, reduced oil changes, that sort of thing that accompany a battery electric vehicle are, in fact, not possible with a plug-in hybrid electric vehicle.

A battery electric vehicle, conversely, has only an electric drivetrain, no internal combustion drivetrain. The good news about these vehicles is the batteries are getting larger, meaning that the range of these vehicles is getting further, and they're charging faster than ever before. However, we do still see limitations, you know, across our highways and corridors and in the charging infrastructure. That's catching up quickly, but today it remains a bit of a limitation.

[Reference: Presentation Slide 4]

Next let's talk about EVSEs or EV chargers. You know, I've worked in a couple of different industries; I was in the energy efficiency and HVAC industry with the company for a long time, and HVAC also has fancy terms for things. But an EVSE is just an EV charger. And so, you know, to talk a little bit about those, they range from what is just a standard wall outlet. All EVs can plug into a standard outlet. They come with that hardware off the showroom floor, if you will. And in doing so, you can get maybe three miles an hour of range on that charge. That is great for a plug-in hybrid that only has 25 to 50 miles of range anyway. And then we move all the way up, on the high end, to DC fast-charge. For consumer vehicles, these top out at about 350 kW; that can get you as much as ten miles of range a minute. And to think about what these devices equate to, a Level 1 charger is kind of like a hairdryer in terms of its load; a Level 3 charger can be as large as, let's say, a large home improvement store or a small fast-food on the low end, something like a Krystal's or a Rally's, that sort of thing.

[Reference: Presentation Slide 5]

A little bit of the state of the industry here. You know, battery prices are dropping. That's the major cost differentiator for an electric vehicle. Again, battery ranges are getting larger. And so, with all of this, what we are seeing is increased state of adoption. Adoption is increasing not only in South Carolina but across the country; and, you know, with that adoption and these technological advances – as Jay mentioned, you saw a lot of ads in the Super Bowls – the automakers are making big bets on electric technology. GM will be all-electric by 2035 and Ford is promising 40 percent electric by 2030.

[Indicating.] There we go.

[Reference: Presentation Slide 6]

Okay. We also wanted to talk a little bit today about some of our programs in flight. So, in Duke Energy Carolinas, we have a Residential Rebate & Off-Peak Credit Program. We have had very sound uptake within this program, with over 300 customers enrolled. We are able to see when customers aren't charging sufficiently to remain in the program. But what we've also seen, most importantly, is ability to impact the load shape of those customers

and their charging.

So in the winter months we have an early-morning system peak and, as expected, we have less impact on charging at that time, because less charging is going on. However, in the summer months the peak tends to be in the late afternoon and as people arrive from home, and we have made significant progress in helping those customers to curtail their charging during those summer system peaks.

If you look at the bottom two charts, the left is pre-enrollment and the right is post-enrollment, and so you can see with those charts that the charging from those customers has gone down, in some cases by 75 percent. So really significant results there. And that's important, and we'll return to that later.

[Reference: Presentation Slide 7]

With the Park & Plug DC Fast Charging Program, we are well underway. We are – you know, I think, with this program, most importantly, learning things about our processes, about how they impact our customers, about how our customers need our help to locate and site this type of hardware, and to respond, you know, not only during normal times

but we are in an incredibly challenging supply-chain history, you know, right now, and in addition to that, there is an EV charging boom. And so it is important for us to experience this firsthand to understand what our customers, as they intend to install DC fast-charging and other types of chargers, will go through. And we're really making a lot of headway on that, and certainly can speak to that in detail as desired. I want to make sure we take some time to get to the main event here.

[Indicating.] I'm going to get the hang of this thing. There we go.

[Reference: Presentation Slide 8]

Okay. So, the diagram you see here is a mockup of how we have thought about the technology stack as it relates to EV charging.

So the first thing I'm going to do is define "make-ready." So, if you think about all the way to the right of your screen, you see an EV. That's not part of what we're talking about today, except that it's the end user. And you also see the EVSE, again, just a charge, right? That is the final destination for those electrons.

However, to get electrons to the charger and, thus, to the car, we need infrastructure between

the electric grid and the charger itself. And that's all that Make-Ready is. It's just a fancy term for infrastructure.

And then we can work that backwards, and we see the meter and the company's distribution system.

[Reference: Presentation Slides 9-10]

All right. So, we're going to start here with the Make-Ready portion, meaning the customer-sited and -owned infrastructure within this technology stack. And in order to talk about that, we first will think about how this compares, potentially, to our own system and distribution line extension plans. And to talk about that, I will hand this over to my colleague Ms. Reed.

MS. TERESA REED [DEC/DEP]: Thank you, Cory.

And good morning, Chairman, and Commissioners. I work in Rates and Regulatory, and I'm going to talk a little bit about our line extension policy and how that aligns with our proposal for Make-Ready.

So, from the diagram, we have costs in front of the meter, so our distribution system, and currently we have a Commission-approved program for our line extension policy, which allows us to

provide a revenue credit to customers to bring service to the grid.

So, for residential customers, we give them a five-year revenue credit; and for non-residential customers, we give them a three-year revenue credit. The purpose is to cover their costs to connect to the grid. It also is beneficial to our customers and to the utility because it brings load to the system which ultimately lowers the cost of electricity to all customers by increasing the amount of electrons we're selling, assuming we're covering marginal costs.

[Reference: Presentation Slide 11]

So with the line extension program, we start with the cost of the extension. So that could be adding line or adding different components to the grid to bring service to a new area. We estimate the revenue credit, so if it's non-residential we estimate how much revenue that load is bringing. We give that customer three years of revenue credit. Anything of our costs that exceed our revenue credit, the customer pays in CIAC to the system.

So this diagram is representing that process. So in this example, let's say the cost is $1000.

The revenue credit is $600 – $200 a year times three years. So our contribution would be $600 and the customer's contribution would be $400. Through normal utility ratemaking, we would recover the $600 through base rate, through our normal process.

So, we thought we could learn from the line extension policy because, if you were a new customer and you were adding EV, you would get the credit for your EV anyway. So this process allows customers who already exist to get their credit the same way that they would have gotten if they were a new customer. So this is kind of the premise and the basis for the program that we're offering. It kind of builds on a long-standing policy that most utilities have across the country. So if you can go to the next –

VICE CHAIR BELSER: Can I ask a question real quick?

MS. TERESA REED [DEC/DEP]: Yes, ma'am.

VICE CHAIR BELSER: How feasible is that $1000 cost for what we're talking about with EV charging stations? I mean, is that just an easy number to throw out there or is that realistic as far as what it would cost to put in an EV charging station?

MS. TERESA REED [DEC/DEP]: That was an

example. It would be a lot more for DC fast-charge. But for residential, that is reasonable, based on the amount of revenue that we anticipate the typical residential customer to bring to the system, times five years. But for a non-residential customer, it would be much higher.

VICE CHAIR BELSER: Okay.

MS. TERESA REED [DEC/DEP]: That was more illustrative so that we could explain it easier.

VICE CHAIR BELSER: That's what I was – thank you, very much.

MS. TERESA REED [DEC/DEP]: You're welcome. If we could go to the next slide Cory?

[Reference: Presentation Slide 12]

So to kind of carry that thought through, kind of an overview of the program, we're trying to align cost with the allocation of investment with future revenue, so we're trying to make sure that we're covering our marginal cost and contributing to embedded cost, so that it benefits all ratepayers. It can be flexible, based on what individual customers' needs are. So, if you have a fleet customer that needs a high-end DC fast-charger, the calculation could be modified to support that. Or if you have a lower-end customer

that needs a Level 2 charger that requires less infrastructure and also contributes less cost to the company and to the grid, the program can be flexible and cover the range of customers that we have.

So if you look on what would be, I guess, my right, the Make-Ready Program is not for just Duke Energy types of programs; it supports any type of program. So if you have a customer-owned EVSE, you want to buy your own charger, Make-Ready supports that. If you want to lease a charger from a third party, EVSE supports that in terms of Make-Ready. If you want to lease a charger from Duke Energy, assuming our program is approved, you could also use Make-Ready in terms of the infrastructure on your side of the meter leading up to the EVSE. So it's a building block to support growth in this market and to help customers adopt the technology in a consistent and fair way across our customers.

[Reference: Presentation Slide 13]

So a little more about the program design. So, there are three elements to it: We have residential, non-residential, and homebuilder.

I'll start with residential. So this would be in the case of a retrofit. As I said before, we're

kind of following the same methodology as line extension, so for residential we are going to propose a five-year revenue credit for the EVSE charging component. The credit would be based on publicly available data for the typical residential EV charger. So we have data that tells us how many kilowatt-hours the typical residential customer uses from their home. It would have to be installed by a preapproved or any licensed contractor, so we could have a network of contractors to make it easy for customers or, if customers want to hire their own electrician, they can do that. And then to get the credit, we would ask customers to provide us with their invoices, their EV registration, and any permits under the law that are required.

So then, if the customer satisfied all the requirements of the program, they would receive a credit back from the company for their costs, up to their demonstrated costs. So in our example, if a residential customer were to receive a maximum of $1000 credit and it cost them $800, we would give them the $800 back. If it cost them $1500, the maximum they would get back is $1000 from Duke.

So moving to the next, middle bucket is non-

residential, and this is a retrofit, so an existing customer. It would be three years, because that follows line extension. We are going to propose for multifamily dwellings a five-year credit to encourage EV adoption for non-residential in apartments. We find that will be a challenge, getting apartment owners to invest in the technology for their residents, so we thought that would be a good option to encourage that type of investment for non-residential in an apartment type of setting.

This would work a little different. The credit determination would be a little more customized for the particular use case. It would require a licensed contractor. Currently, we do not have a preapproved contractor network for non-residential, but that's something we could think about in the future as we move forward. And, again, there would be certain elements that we would require to support paying the credit, which would be the installed invoices, the cost from invoices that could be verified; customer usage profiles that we would look at what the usage is and kind of map that to load-profile shapes so we can determine the appropriate amount of the credit;

and any permits.

In this situation, we would not require an EV registration because it would be bought – you know, the owner probably wouldn't have an EV, but the people who would be using it or the non-residential business would need it for whatever purpose they would be serving.

And then the last bucket is the homebuilder bucket, and this is the case where it's residential new construction. We would offer a fixed credit per home to the homebuilder, and it is based on the estimated labor and materials for adding the Level 2 plug to the garage of the home or the exterior of the home if it doesn't have a garage.

We would work to get a kind of preapproved list of contractors that could submit some sort of certification that they are doing this, and then we would need evidence of installation from the homebuilder. And that credit would be about $150, because it would be significantly less, if you're already in the building process, to add the infrastructure for Make-Ready.

And Cory, I'll turn it over to you to go through some of the benefits of this.

MR. CORY GORDON [DEC/DEP]: Thank you, Teresa.

[Reference: Presentation Slide 14]

All right. So, why is this good for participants and non-participants?

You know, for participants, there's an obvious offset of costs. We talked about the example where, you know, it's realistic that the cost to bring a 240 volt circuit to an outlet or to a junction box is, you know, in the neighborhood of $500-$700-$1000 for a single-family home, and that's something that we can help those consumers offset.

There's also a concern – and, again, this was highlighted in the Super Bowl commercial, but we've heard it elsewhere – that consumers really fear electricity and they have a concern about a safe installation. And so that is something that, with the contractor network and ensuring that licensed contractors are doing these installations, we can help, you know, customers, consumers, and businesses to get safe and high-quality installation. And we also know, from working with our customers, that, especially on the non-residential side, they want to plan for the future. They want to think about what they do next, how many chargers do I need, how many should I plan for

in the future but not install today? And these are things we can help guide those customers through, if they're coming to us to interact as they consider their project.

For – and let me not be remiss. Again, this program can apply across any type of charger ownership situation, so it's available regardless of third-party ownership, direct customer ownership, you know, the utility program that we'll talk about next, this applies to all of those. Really, very flexible.

For non-participants, we have, I think, been able to demonstrate with our Off-Peak Credit Program that we can help flatten the overall load on the grid with reasonable incentives and ahead-of-time signals to our customers. And so all customers, then, will receive the benefit of that flattening load shape of the grid at large. And, similarly, because this program is unique from others of its kind that pay for make-ready infrastructure and based on revenues, we know that – or, excuse me – we expect, then, right, that the future revenues from these EVs charging would offset the program costs that go into them and, therefore, mitigate the impact on the rate base at

large.

[Reference: Presentation Slide 15-16]

Okay. So we've got a line extension that's perhaps taken place to bring additional capacity to a customer. We've talked about the Make-Ready Credit and how that has enabled any type of installation to proceed all the way up to the point of the charger itself. So now we're going to talk just a little bit about an EVSE tariff program – again, just EV charger – that will help us get that final piece of the puzzle in place for our customers and make it simple for them to move forward with their EV charging needs.

[Reference: Presentation Slide 17]

MS. TERESA REED [DEC/DEP]: Okay. I will take over. Thank you, Cory.

So, for EVSE, the charger equipment model, if you think about our outdoor lighting process now, it's a good comparison. We have our outdoor lighting rate architecture on the left of the screen, and that consists of pole, underground; it includes maintenance; it includes the fixture. It's an all-in rate for everything, which makes it easy for customers. They know that, if they get a light, this is exactly how much it's going to cost

them.

And so that is similar to what we are proposing for EVSE, where we would have one rate which would include accessories, networking, maintenance, and charger. And it would allow the customer to be able to rent EVSE equipment and know exactly what they're going to pay for that equipment. It does not include energy, because the customer could choose whatever energy rate that would be applicable, and this is a company-owned but customer-operated program, so they can operate the equipment however they want to operate it. So they can, if it's legal – which I believe that it is – they can charge the end user for the electricity associated with the EVSE. So, we are just providing a service in terms of being able to charge and rent equipment at a price that's affordable.

EVSE equipment, particularly on the high end, if you're looking at a, you know, really – you know, a 100 kW, 150 kW piece of equipment, it could get very costly to do the installation, and the average customer may not be able to afford that. So if we want to move the needle in terms of that EV adoption, we are going to have to support

customers in being able to do that. And we think the EVSE program will do that, because it's similar in terms of how we handle lighting. One rate for everything bundled together, except for energy, which would allow them to rent the charger and then to operate the equipment however they need to operate the equipment.

COMMISSIONER POWERS: Ms. Reed.

MS. TERESA REED [DEC/DEP]: Yes.

COMMISSIONER POWERS: Can I ask you a question?

MS. TERESA REED [DEC/DEP]: Yes, sir.

COMMISSIONER POWERS: And it's really more curiosity. I know, with phones and things, that everybody's got their own sort of plug, their sort of plug-in equipment, and everything is different. Drives me crazy. Are the manufacturers, automobile manufacturers – is there any consistency in what they're putting out? I know I've been seeing the Tesla thing for a couple of years, but is there some consistency? I know you would use an adapter if there isn't, but I'm just curious as to how the manufacturers are handling that issue.

MS. TERESA REED [DEC/DEP]: Cory, do you want to take that one?

MR. CORY GORDON [DEC/DEP]: Yeah, sure. Thanks for the question, Commissioner Powers. So, to your point, Tesla has been around for years and they have a vertically integrated approach. And so, they have their own connector for Tesla vehicles. There are two other standards for fast-charging. One is called "CCS combo"; that has typically been adopted by European, South Korean, and American manufacturers thus far. The second standard for fast-charging is called CHAdeMO, short for "CHArge de MOve." And typically that's been adopted, at least historically, by Japanese auto manufacturers. However, beyond the Tesla, most OEMs are moving to the CCS combo, the Canadian/American standard that's from the Society of Automotive Engineers. Not there yet, but headed that way. And then, for Level 2 charging, that connector is typically the Society of Automotive Engineers or the Tesla connector.

COMMISSIONER POWERS: So your stations, you put your stations out there somewhere, are you going to have to have different sort of plugs on that? Or is it going to...

MR. CORY GORDON [DEC/DEP]: So, you know, again, one of the great things about the EVSE

tariff program is that customers have choice in what they want. And so, if they wanted a particular connector, whether it's a CHAdeMO or a CCS — again, Tesla tends to be a sort of closed loop; it's vertically integrated. But the customer can choose those. Today I would probably encourage those customers to think about having both types, in some cases, especially for DC fast-charging. Again, for Level 2 charging, there's only one, outside of the Tesla standard. But very possible that a customer would need both or adapters on hand.

COMMISSIONER POWERS: Thank you. Sorry for the interruption, Ms. Reed.

MS. TERESA REED [DEC/DEP]: That's okay. Thank you, Commissioner Powers.

I think, Cory, we're —

COMMISSIONER CASTON[A/V]: Chairman Williams?

CHAIRMAN J. WILLIAMS: Commissioner Caston, you have the floor.

COMMISSIONER CASTON[A/V]: I wanted to make sure I understood that last part. I was going to ask, for the devices that are, you know, Tesla's got something different, you did say there are available adapters that would accommodate the

different charging connectors?

MR. CORY GORDON [DEC/DEP]: Yes, Commissioner Caston, that's correct.

COMMISSIONER CASTON[A/V]: Good enough. Thank you, sir.

MR. CORY GORDON [DEC/DEP]: You bet.

MS. TERESA REED [DEC/DEP]: So, Cory, I think I'll turn it over to you, to cover the next slide.

MR. CORY GORDON [DEC/DEP]: Thank you, Teresa.

[Reference: Presentation Slide 18]

All right. So, again, just to highlight the basics of the EVSE tariff program, like outdoor lighting, the utility owns the charging hardware, provides the software as necessary, but again – and this is an important point – the customer operates it. They determine who can access the charging, and we'll talk a little bit about, you know, a particular use case and how, if they want to set fees for the use of that charging, they determine whether or not to do that, how much the fees are. It would be up to them to control any output of the charger, so if they wanted to throttle that output to manage demand charges against their electric bill, they have the ability to do that, and we really anticipate that we do everything we can to –

you know, other than, you know, the ownership of the charger and its maintenance, that, you know, we would enable customers to have total autonomy in how they utilize the chargers for their business needs. Because every business or homeowner may have some different needs.

Another basic is that we bring our expertise to bear. So, one charger does not fit all. We have talked with customers over the years that come to us and say that they need a fast-charger, and we talk to them and, you know, walk through their use case, and it turns out, "Well, maybe you need a couple of Level 2 chargers, or maybe you need a 19 kW Level 2 charger," so a fairly high-powered in the Level 2, you know, continuum, but they don't really need a full-on fast-charger. And so we want to help them right-size that equipment and its configuration to what it is they're trying to do.

And then, finally, you know, this is a program that would, you know, help us help customers of all types. So whether it's a fleet customer, a convenience store, single-family homeowner, apartment complex and its tenants, this program is flexible enough to apply to all of those.

So what do participants get in this program?

Very obviously, capital barriers are removed, so the upfront cost of the charging station itself is something that they can avoid. We intend to provide a large selection of hardware and software, as well as networking and, you know, the accessories that are necessary, so pedestals, bollards, that sort of thing are things that we would anticipate bringing to bear, to make a complete and safe installation. Maintenance, that is something that, especially with fast-charging, can be a challenge troubleshooting and, you know, figuring out what's going on with a particular charger is not always as easy as it might seem. So that's a hassle we would take away from the customers and bear on their behalf.

And then, finally, you know, we find that EVs and EV charging is, frankly, just mystifying for the general consumer base, and so some of that just general uncertainty and fear of the unknown are things that we would take on and manage for the customers, and something that we've got some experience in.

Non-participants, you know, this is an optional program so customers are not required to participate, and if they do not participate they

bear no costs. However, if there is participation within, you know, a given rate, and we are able to help those customers manage their load through these or future programs, then, you know, the non-participants would receive any benefit of downward rate pressure.

[Reference: Presentation Slide 19]

Okay. So, this is kind of a fun one. I want to talk about how we can leverage these programs, combined, to help an apartment complex enable EV charging for its tenants.

So, we've seen in stakeholder engagement throughout the last year or so that this is a topic that is very important, that multiunit dwellings are something that stakeholders across the State want to see, you know, included in the EV revolution. And so, we thought it might be helpful to talk about this. And we have had a number of experiences talking through customers about this particular use case.

So, we've got the, you know, Duke Energy distribution system that's brought to the customer through the line extension plan. In this case, the multiunit dwelling customer would leverage five years of revenue credit to bring infrastructure

from their existing or perhaps a new meter — and that may be the lowest-cost approach for them — up to the chargers themselves. And so, we would help the customer determine how much they need, where to site, that sort of thing. The customer does their own construction, and then we can apply the credit towards the end of that process. And then, they would leverage the EVSE tariff program to get the right charger, for them, installed and at no upfront cost beyond what they paid for the infrastructure installation itself.

And then we start to talk about, okay, how does this charger interact with those tenants. So, the network charger has the ability to control access, either through an RFID token or a smart phone app, if preferred. Some multiunit dwelling customers choose to put these behind an access-controlled gate, which can be simplifying. But in this case what we're saying is the tenant would use a smart phone, walk up, scan the QR code — that little square that looks a — well, I don't know what it looks like, exactly — sort of a crossword puzzle, there we go. And so, they would scan that QR code, and that would bring up the app for the network software. And when they bring up their

app, they would authenticate, because they would be on an authorized list, right, for that set of chargers, and the apartment complex determines who's on that list. So now they've gotten access to the charger; they can start charging.

The apartment complex may also choose, "Well, hey, we know that this charger makes our property more attractive, in general, so we're not trying to make money on the charger itself, necessarily, but we do need to recoup our costs of electricity, because that's an operating cost we just can't bear." And, so, again the apartment complex could say, "Okay, I need to charge," you know, whatever number it is – typically in the, you know, little more than 10 cents, less than 15, is what we've been seeing – "and recoup my cost of electricity." And so what would happen then is, through the app that the customers brought up on their smart phone, they pay for whatever they use as they use it, if that's the way the apartment complex chooses to go, and those fees are then collected by the network service provider and then remitted to the apartment complex, typically, minus some transaction fee, on a monthly or quarterly basis and, you know, that's typically through an electronic funds transfer.

But, you know, if you think about it, what we see here is the collection of these programs and our ability to guide the apartment complex to enable their tenants means that they get the infrastructure installed with a credit against it, no upfront cost for the rebate, the tenants can access charging without owning a single-family home, they get a low electric rate to pursue that charging, so, you know, they're not paying DC fast-charge rates and that sort of thing. And then, finally, the apartment complex is made whole on, you know, that investment, at least in part, in terms of what they're spending on electricity.

So, really excited about use cases like this, and obviously this is one example. We could talk about workplaces, we could talk about fleet electrification and that sort of thing, but wanted to walk you through this particular example here today.

[Reference: Presentation Slide 20]

So, with that, we conclude our presentation and welcome any additional questions or discussion.

CHAIRMAN J. WILLIAMS: Thank you, panelists. I appreciate the presentation. I have a couple of questions, if you-all don't mind.

MR. CORY GORDON [DEC/DEP]: Sure.

CHAIRMAN J. WILLIAMS: So, you-all talked about your program at a high level. I didn't mention — I didn't hear mentioned — well, and I had to step out for a second, and maybe you did. Let me pull this up [indicating]. I'm wondering how, if at all, your program involves 58-27-1060, electric vehicle charging stations? And it may not. If you haven't heard of it, before, probably —

MR. CORY GORDON [DEC/DEP]: Yes, forgive me, Chairman. I'm not familiar with that, by the number, at least.

CHAIRMAN J. WILLIAMS: Okay. Are you tracking how many apartment complexes, employers, potential businesses that may seek to relocate to South Carolina are requesting charging stations? Are you tracking that number?

MR. CORY GORDON [DEC/DEP]: I'm not aware of us tracking that directly. We see a number of — you know, we have incoming interest from our customers and, certainly, I believe we could — well, actually, as I think through that, yes, we are tracking, because we have incoming interest. And, you know, we can put together some statistics

on that, if desired, and that sort of thing. So forgive me, I had to think through some of our mechanisms that are in place.

CHAIRMAN J. WILLIAMS: That's fine. We're just having a conversation.

And, please, Chief Legal Officer and my counsel and Duke counsel, object if I'm going outside the scope of our presentation.

Because I think this is very important, and I appreciate you're — the program you're offering. But I think there are some things that are happening that we may not necessarily be aware of, regarding your program. Would you say that the adoption of electric vehicles is something that is being led by industry — the automotive industry, if you will — as opposed to, say, you, as a generator? Your company?

MR. CORY GORDON [DEC/DEP]: I certainly think it's fair to say that the automotive industry is a major and leading factor. We hope that, you know, we can serve an enabling role and that we can ensure that, as electrification occurs, you know, we are able to participate in such a way that, you know, it's best for all of our customers.

CHAIRMAN J. WILLIAMS: Right. So someone

mentioned the Super Bowl. And I watched the Super Bowl, and I counted the ads, the electric vehicle ads. I was surprised by the number. I think I counted seven. And at $6.5 million a clip, that's $45½ million just spent on advertising. You mentioned General Electric[sic] and Ford, but there's also the commitment made by Volvo and Volkswagen. And so, my concern is whether or not our infrastructure is prepared for the influx of electric vehicles that will come onto the grid. But not only that, whether or not we have the infrastructure to attract talent, whether that be human talent or corporate talent, companies that want to relocate to South Carolina but they have employees that see electric vehicles as a quality-of-life issue. Can you talk a little bit about that?

MR. JAY OLIVER [DEC/DEP]: Yes, I'll take that, Chairman Williams. So part of my role at the company is to assure that we are ready for that influx of electrification. And to Cory's point earlier, we do track everything that's happening. We actually just added a manager on Cory's team that's accountable for fleet electrification and works very closely with our folks in the field that

receive new service requests, and we'll be tracking these in all of our service territories.

So, one of the important things about this program is — and both of these programs working together — when we make the grid ready for vehicle electrification, particularly in a residential setting or a multifamily setting, a lot of that is about being able to manage the charging. And that type — for that type of customer, the load is fairly malleable, particularly if they're charging at 240. It might take three hours to charge from empty, for a typical vehicle.

With that type of flexibility, being able to move the load around to charge at different times — and we just demonstrated a little bit earlier that programs as simple as a time-of-use rate can help that. Eventually, we'll have more programs that encourage customers to charge off-peak and actually give us the ability to control those chargers, and it's unlikely they're going to even notice it, because likely they only need — if from empty, which is rare — say, three to four hours to charge. That same type of thinking applies also for residential customers.

So we feel like, with energy efficiency

programs, with managed charging, with being very closely involved with what's happening in the communities, we can manage that growth on that side.

It's a bit of a different story when you talk about fleet electrification, when you talk about significant growth, let's say, with rental car companies at airports or very large fleet companies that deliver throughout your neighborhoods every day – UPS, Amazon, and so forth. Each one of those is a bit of a unique case, and we need to study those, make a best determination of what the right solution is, and present that to the customers. We'll need to do that proactively, because some of these things – particularly, on the fleet electrification side – the loads are very large, and it may take us, potentially, years to be able to serve that infrastructure. So we've got to get ahead of that. We're working on that right now in all of our jurisdictions. But there is some work to do there.

CHAIRMAN J. WILLIAMS: Other than – [indicating] other than approving the program, obviously, what are some things that the PSC should consider or maybe even educational opportunities to

be better prepared to address these issues as they arise?

MR. JAY OLIVER [DEC/DEP]: I want to make sure I can answer this the right way. We —

CHAIRMAN J. WILLIAMS: Yeah, make sure, now.

MR. JAY OLIVER [DEC/DEP]: We have no recommendations about any type of programs' approval, or anything like that. But I would say there's lots of education out there around electric — I'll call it just transportation electrification. There's different types of transportation electrification. There are educational opportunities. I recently spoke at NARUC out in Denver. It was about a year ago, and I talked specifically about the challenges of fleet electrification and the fact that we have to get ahead of this. We need to think about it proactively and maybe propose some solutions directly to our commissions that will help us meet this growing need.

So I'd recommend things like that. Certainly, there's other avenues for education. And hopefully that helps.

CHAIRMAN J. WILLIAMS: I have one final question for the panel. Are you-all partnering

with any automotive companies, automakers, focusing on their specific needs and maybe — I don't know how much of the market Tesla has in South Carolina, but maybe there's a company that has a larger market share than another and maybe there's a decision to be made to partner with that company to maybe push the technology and innovation along? Is that in the works?

MR. JAY OLIVER [DEC/DEP]: Absolutely. In fact, this week. We're meeting this week with a very large manufacturer.

CHAIRMAN J. WILLIAMS: All right. Thank you for what you're doing.

MR. JAY OLIVER [DEC/DEP]: A very important one.

CHAIRMAN J. WILLIAMS: This reminds me of one of my favorite television shows — I think it's The Making of America. I think that's the name of it. It's on the History Channel. And this reminds me of Morgan, Carnegie, Rockefeller, Edison, Westinghouse, and Tesla, as we were trying to figure out how we were going to electrify America and power America. So I think we're at a very interesting crossroads and it's very important for us to work together for the common good. So thank

you for your innovation and your presentation.

VICE CHAIR BELSER: Mr. Chairman.

CHAIRMAN J. WILLIAMS: Vice Chair Belser.

VICE CHAIR BELSER: Thank you. Appreciate you-all's presentation today, and your comments. But one thing that kept coming through my mind was I think most residential customers are single-phase. Adding a charging station, is that going to work on single-phase or are they going to have to upgrade to triple-phase.

MR. JAY OLIVER [DEC/DEP]: No, at residential locations, Commissioner Belser, that will be fine. They're single-phase, but single-phase means there's 120 service and 240 volt service. It helps to have 240 volt charging at the home. It helps us to better manage the grid. Helps us with that flexibility I talked about earlier. But all residential service has 120 and 240.

VICE CHAIR BELSER: Thank you.

COMMISSIONER C. WILLIAMS: Chairman Williams?

CHAIRMAN J. WILLIAMS: Commissioner Williams, you have the floor, ma'am.

COMMISSIONER C. WILLIAMS: Thank you, very much. I appreciate the way you presented and the, you know, kind of starting with the basics and

building on that. My first question has more to do with I didn't hear kind of how this might be a pilot? And maybe this isn't the time for it, and so, again, stop me if I go too far. But, you know, are there metrics that you're looking for in terms of numbers of non-residential, residential? Are there dollars that, you know, you won't go past? Or is this not a pilot kind of program? Can you talk more about that aspect?

MR. CORY GORDON [DEC/DEP]: Commissioner Williams, I'd certainly welcome thoughts from my colleague Ms. Reed on this, as well. However, you know, at this time, we don't think about these necessarily as pilots. We think that, for a number of years to come – and, you know, how quickly and for how long, I think, is hard for anyone really to pin down, but we see these as being programs that, you know, enable our customers, serve as a steppingstone to load management that is, frankly, going to be necessary and, you know, enable us and get us some connectivity to our customers as they pursue this revolution for their own reasons. So, you know, based on that, we think this is something that is likely going to be needed for quite some time.

MS. TERESA REED [DEC/DEP]: And I would agree with that, Commissioner Williams. We know that our low-income communities tend to be slower to adopt. So if we were to limit the time span on the programs, it would have a disparate impact on low-income customers. So we want to have these as permanent programs that we would manage, just like line extension and outdoor lighting today.

VICE CHAIR BELSER: Commissioner, can I ask – can I jump in on that?

COMMISSIONER C. WILLIAMS: Sure. Absolutely.

VICE CHAIR BELSER: Are y'all not talking about the programs that are – were filed on the 2018 dockets? Are we on those dockets? Is that what these programs are, you're talking about? Ms. Brown, you want to step in here?

MS. BROWN: Commissioner Belser, these programs are not proposed in this docket, but we included this docket as an update on those pilots. These would be two forthcoming programs –

VICE CHAIR BELSER: Okay.

MS. BROWN: – that the companies are proposing.

VICE CHAIR BELSER: Okay. Because my understanding from those dockets is those were

captioned as pilot programs; is that correct?

MS. BROWN: That's right.

VICE CHAIR BELSER: So these are a little bit different.

MS. BROWN: These are different programs.

VICE CHAIR BELSER: Okay. Thank you, very much.

MS. BROWN: Thank you.

COMMISSIONER C. WILLIAMS: Thank you for interrupting, because that helped to clarify my thoughts.

On page seven of the presentation – it's the Park & Plug DC Fast Charging – never mind. That answered my question.

Okay. My next question is, on the EV Make-Ready proposal summary, do you have a timeframe in mind for repayment for that electrical work? Does that make sense?

MS. TERESA REED [DEC/DEP]: So, the – so, the way the program is structured – so, for residential, for example, we intend to give a five-year revenue credit. We anticipate, based on our analysis, a 15-year review of the program. So, when we looked at the program, we did what we called a reverse RIM analysis to determine whether

non-participants would be harmed by the program. So, the measure life or the length of time we used was 15 years to do our analysis for both residential and non-residential, thinking that, once the infrastructure is there, it will be used well into the future.

COMMISSIONER C. WILLIAMS: Okay, thank you. I was actually thinking about something a little bit more pragmatic and more kind of real. Let's just say I'm one of your customers and I have made — I'm a residential customer and I've made a choice and I've used one of your preapproved contractors. I've spent $800, and I'm just asking do you have an idea of when that repayment would happen?

MS. TERESA REED [DEC/DEP]: Oh, I'm sorry. I misunderstood your question.

COMMISSIONER C. WILLIAMS: No, I liked the other answer, too, so I'm glad I was vague and not specific.

MS. TERESA REED [DEC/DEP]: So, once the documentation is submitted and assuming that it is accurate, we would get your money back to you as soon as possible, within 30 days or roughly there, after, so it would be fast.

COMMISSIONER C. WILLIAMS: Thank you. And I

only have a couple more. So, in the discussion about EV service equipment, would it be possible for private gas stations to make the choice to rent from Duke as part of that? And maybe there are other examples, but I guess I'm thinking I'm used to going to a gas station to allow my car to go further down the road. Is that an option for the private gas stations?

MR. CORY GORDON [DEC/DEP]: It absolutely is. In fact, we hope that convenience stores and gas stations will be one of our customers as we deploy programs like these. And to Chairman Williams' prior question, we're also talking with the OEMs about deploying this type of infrastructure for some of their dealerships who, likewise, are going to be electrifying at a pretty intense pace, and they may seek some, you know, cash flow type options as opposed to the capital.

COMMISSIONER C. WILLIAMS: But that wouldn't be any kind of requirement. It's just an option.

MR. CORY GORDON [DEC/DEP]: Completely optional.

COMMISSIONER C. WILLIAMS: Okay. I found the discussion about the rental intriguing. And it's — the rental of the EV equipment is available

residential and non-residential? Or just non-residential?

MS. TERESA REED [DEC/DEP]: Both.

COMMISSIONER C. WILLIAMS: Okay. This could be outside the scope, so stop me, attorneys.

As you thought about this, are there other elements in our home and business that this might be applicable to? Like a hot water heater? Or – I mean, I don't know – I don't have a – I'm just wondering if it could lead to other options in the future. We can just –

MR. BATEMAN: Commissioner Williams, I think the noticed topic is relatively broad.

COMMISSIONER C. WILLIAMS: Yeah.

MR. BATEMAN: So to the extent – this is Andrew Bateman speaking. To the extent the answer and the question relate back to what was noticed, such that they could lead to X, Y, and Z, I don't know off the top of my head that that immediately would fall outside the scope of what was noticed. That being said, I think there would come a point in time where it does start to go outside.

COMMISSIONER C. WILLIAMS: Okay.

MR. BATEMAN: So that's Andrew Bateman's opinion.

COMMISSIONER C. WILLIAMS: I appreciate that.

On your apartment complex example, you know, you've — and you've talked about the three elements of this program. Are they required to be used sequentially and in all cases? Or are these options and you've just shown them in that one slide all together?

MR. CORY GORDON [DEC/DEP]: These are pieces of the puzzle. And customers can select all of them or none of them or somewhere in between, as they see fit.

COMMISSIONER C. WILLIAMS: And my last question is, does any of this relate to the new federal funding? And if so, how?

MR. JAY OLIVER [DEC/DEP]: I'll take that one, Commissioner Williams. Let's say it's complementary to the federal funding. The programs we're talking about here today are largely about private charging. For example, charging my vehicle where I live or charging vehicles where they come back from work for a day. The federal infrastructure funding — we don't know the answers to all of this, but I would think largely it's going to be used for public charging: things like highway charging, DC fast-chargers, in rural areas

along, let's say, along 77, like when I drove here today from Charlotte. Both are needed, as we move forward on the journey. So I view them as very complementary, frankly.

COMMISSIONER C. WILLIAMS: Thank — Ms. Reed?

MS. TERESA REED [DEC/DEP]: Pardon me. I'll add to your answer, Jay. In our Make-Ready proposal, we carve out any sort of third-party funding. So if a customer were to receive federal funding, we would not duplicate pay for that funding; we would only pay for what the customer themselves would pay for. So we have contemplated that in our proposal and it is complementary. Thank you, Commissioner Williams.

COMMISSIONER C. WILLIAMS: Thank you, all three of you, for your thinking inside and outside the box with me. Appreciate it.

CHAIRMAN J. WILLIAMS: Commissioner Caston.

COMMISSIONER CASTON[A/V]: Thank you, Chairman Williams.

And I'll just ask these questions, and Mr. Oliver, Mr. Gordon, Ms. Reed — I mean, whomever. And, likewise, if I am outside the boundaries there, we have three fine attorneys and I'm sure they'll let me know that.

I couldn't – I can't remember if it was part of the presentation or if I just heard it or read it somewhere, relative to the life of these charging systems. Did you mention that in this presentation, or did I hear that elsewhere?

MR. CORY GORDON [DEC/DEP]: Commissioner Caston, if I may clarify, you're asking about, say, the useful life of the chargers themselves?

COMMISSIONER CASTON[A/V]: Yes, sir.

MR. CORY GORDON [DEC/DEP]: So, you know, the asset life or book life is something that I would defer to my colleague Ms. Reed on. But, you know, I would say that what we intend as part of this program is to ensure that, you know, customers are getting, by virtue of our provision, the proper maintenance on these chargers to ensure that they hit their useful life or go beyond it. So I wanted to, you know, make sure to hit on that point, because we know, like any other piece of equipment, that these won't – they won't last if they're not taken care of, and they won't be available if their connectivity is not maintained and that sort of thing.

MS. TERESA REED [DEC/DEP]: Commissioner Caston, our assumptions assume ten years for DC

fast-charging and seven years for Level 2. And that will –

COMMISSIONER CASTON[A/V]: Okay, thank you. That's what stood in my mind – stood out in my mind. I can't remember if it was something previously submitted, or what. Now, and did I understand you, I guess in response to Commissioner Williams and one of her questions about – I think she was talking about a payback. When you mentioned a 15-year payback, I'm not sure I understood that. Was that Duke Energy's payback period for those credits, or what was that exactly? How did that work?

MS. TERESA REED [DEC/DEP]: Good follow-up question, Commissioner. So, I thought the question was around the analysis for Make-Ready and how we determine that it's cost-effective and does not harm non-participants. So, the analysis that we did is a reverse RIM analysis; it's used in cost-effectiveness testing for demand-side management and energy efficiency programs, where we look at marginal costs and the cost to produce energy, and we determine whether or not we're covering our marginal costs with the program, and how long the useful life that would need to be for the Make-

Ready Credit. And that's not the EV infrastructure. That's completely separate.

So based on our analysis, we used a 15-year measure life for Make-Ready, which would be associated with the infrastructure that the customer has to be able to plug in the Level 2 or the DC fast-charge to that infrastructure. It is not the EVSE itself. The EVSE is a shorter lifespan. But once the investment is made, we assume that customers would continue to utilize that infrastructure.

COMMISSIONER CASTON[A/V]: Okay. I guess that makes me think about the batteries, also. I assume they're lithium batteries. Does that work into the equation, the life expectancy of the, I guess, the batteries themselves? Or do we know that? Or does that play into this at all?

MS. TERESA REED [DEC/DEP]: Commissioner Caston, it does not. In our analysis, it does not play into our programs.

COMMISSIONER CASTON[A/V]: Okay. And this was just something I thought about more than once. If I pull into the QT somewhere on 26, you know, they have these there. What's — and you probably already answered this, but what's the quickest

fill-up for my battery instead of a tank? Not that I'm impatient, mind you, but —

MR. CORY GORDON [DEC/DEP]: Well, to achieve the absolute quickest, you're going to have to buy not only a quick but an expensive car, so you'll enjoy that. But the absolute fastest consumer hardware is 350 kW output. That's not a continuous output, but that's — at the early charging point of the battery, you can sort of think of the battery like a balloon, right? When you start charging it, it's sort of easier to blow up, and as it gets fuller it's harder to push more air in. And so, anyway, to answer your question, around 20 minutes for, you know, a really significant few hundred mile charge is about the fastest that you'll see, but that is a premium car and a premium charger, both.

COMMISSIONER CASTON[A/V]: So since I probably would not own a premium vehicle, what would it typically be, if I'm making a trip, pull over at wherever? About how long should I anticipate it taking for just my kind of electric vehicle?

MR. CORY GORDON [DEC/DEP]: Right. So, sort of, you know, the typical experience in the way you might think about it is, you know, you may make a

few additional stops. I find that I make a lot more stops than before my daughter was born, these days. And so, you know, as I think about this, it's, you know, find the charger, make sure my stop is there, charge for, say, 30 minutes, and then, you know, you've got another 150, maybe a little bit more, miles. Just, you know, again, it all depends on the charger and the vehicle. But, you know, I would say 30 minutes, you know, 150 miles or so, is what you might expect.

COMMISSIONER CASTON[A/V]: All right. Thank you, very much. I appreciate it. Thank you-all for the presentation.

MR. CORY GORDON [DEC/DEP]: Thank you.

CHAIRMAN J. WILLIAMS: Commissioners, any further questions for our panelists?

COMMISSIONER THOMAS: Mr. Chairman.

CHAIRMAN J. WILLIAMS: Commissioner Thomas, you have the floor, sir.

COMMISSIONER THOMAS: Thank you. And I appreciate all the information that you've put out here. I'm a little bit confused about a couple of things, and some of this might relate to the Vice Chair's question about the 2018 dockets. And, anyway, so I probably read that information leading

into this and may have picked up some information there that doesn't relate. I'm just not sure.

One of the things that I was reading about somewhere was a deferred account and that the costs would be going into a deferred account. Does that relate to what we're talking about here, or was that the program in the 2018 pilot and, perhaps, is totally different from what we're talking about here?

MS. TERESA REED [DEC/DEP]: Commissioner Thomas, I'll answer that question. So, it is completely different and separate. We do not anticipate asking for a deferral for our programs.

COMMISSIONER THOMAS: Okay. That's helpful. So, and, you know, I kept hearing in the presentation today about the lowering the unit cost of electricity and the benefits to the non-participants, and you mentioned that the low-income people are going to be the slow adopters. I guess I'm trying to just kind of work through it in my head as to how this is going to flow through and reduce the unit cost. Can you give me any sort of a high-level walk-through that I might be able to understand?

MS. TERESA REED [DEC/DEP]: I can. We also

referenced in the materials a study from something we filed in, I believe, 2018. So that information is there, as well, but I'll try to do it in my style, which is a little different than what is in the materials.

So, if you think about utility usage and you think about our usage at the peak, and at, you know, a lower point or our typical kind of usage, and we have base load running. So if we have customers that fill in the area – where they don't contribute to the peak, so they don't raise the peak, but they help cover base load and they help cover solar production so that we don't have the duck curve, then those customers are helping the grid because they are basically helping cover embedded costs that other customers would normally have to pay.

So, assuming that they cover their marginal costs, meaning they're not adding additional costs to the grid, they're not contributing to the peak of our system, they're using energy that we would produce for base load and helping with solar production that sometimes gives us the duck curve, then that will help all the utility customers, because they will be contributing to embedded costs

and will put downward pressure on rates.

And we've used the study that we've cited in the previous — or, in the dockets that were mentioned, to support that. So it's not us saying that; it's an expert that says that, as well.

COMMISSIONER THOMAS: Okay, thank you. That helps. But I guess I'm thinking you're kind of talking, I guess, at the residential level, people charging at their homes, when you're — high level, what you were just talking about, primarily?

MS. TERESA REED [DEC/DEP]: Commissioner, both, I believe, would be applicable: non-residential and residential customers.

COMMISSIONER THOMAS: Okay. I guess, you know, I'm just thinking about, you know, when I fill up my vehicle — which is gas powered — a lot of times that would happen, I don't know, during peak hours, rush hours. I guess, to me, the commercial charging stations on the highways, and so forth, could be and would be used all the time and, potentially, during the peak hours. Does that figure into the calculations?

MS. TERESA REED [DEC/DEP]: So, it does figure into the calculations. We would have additional programs that Jay mentioned, to help with load and

help manage the grid at applicable times. It would be very helpful for charging, say, for a business that has charging, because we could manage the charging. It would be a little harder for public charging at a gas station, where customers are used to charging first thing in the – or, filling up, now, first thing in the morning and then filling up at 5 p.m. So some of it would be behavioral. Some of it would be managing where we could manage, so those customers that could manage, and having programs and pricing that support that.

If you charged your car at 5 p.m., and it was significantly more to charge it, would you modify your behavior if it was less to charge it during the day? So, utility pricing could play a key role in determining how people charge, and their behavior.

MR. JAY OLIVER [DEC/DEP]: I'll maybe jump in here, Commissioner Thomas. And thank you, Teresa. I think she did a great job explaining that.

Fleet charging – let's just say fleet charging, for example, is going to be a little less flexible. You know, those businesses – gas stations, for example – their business model may require them to charge when they charge. An

example might be an 18-wheeler coming in, a slip seat, the driver's going to go maybe take a small break and 30 minutes later get back in that vehicle and go. And that's where something like a megawatt charging system comes into place.

We are working with some technology providers around potential energy storage options for those type of applications. There's a couple of real benefits there. One could be just offsetting the overall cost to serve that load. Because at a certain point, it gets very expensive for us — particularly in a brown-field location where we already have service to build the infrastructure necessary. So, something like an energy storage device, like a battery, may very well end up being the most cost-effective way to serve that load and give us the flexibility that I just described. Also adds a potential benefit of, if we do happen to have an outage — say, we have a storm come through, hurricane, something like that — if we're able to have a charged battery, that certainly can make a big difference for those type of customers.

It's not a one-size-fits-all approach, and we're working on what that's going to look like. We don't have all the answers yet, but I'm

confident that we will.

COMMISSIONER THOMAS: Thank you, I appreciate that.

CHAIRMAN J. WILLIAMS: Any more questions for our panelists?

[No response]

Anything from the lawyers?

MS. BROWN: Nothing further, Mr. Commissioner.

CHAIRMAN J. WILLIAMS: All right. If there's nothing else, we are adjourned. Thank you for the presentation.

[WHEREUPON, at 11:20 a.m., the proceedings in the above-entitled matter were adjourned.]

C E R T I F I C A T E

I, Jo Elizabeth M. Wheat, CVR-CM-GNSC, Notary Public in and for the State of South Carolina, do hereby certify that the foregoing is, to the best of my skill and ability, a true and correct transcript of all the proceedings had regarding a requested allowable ex parte briefing in the above-captioned matter before the PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA;

IN WITNESS WHEREOF, I have hereunto set my hand and seal, on this the 1st day of March, 2022.

Jo Elizabeth M. Wheat, CVR-CM/M|GNSC
Hearings Reporter - Public Service Commission
of South Carolina

Notary Public in/for the State of South Carolina
My Commission expires: January 12, 2031 .